

CLAIM AMENDMENTS

1. (Currently Amended) A semiconductor device comprising:
 - a semiconductor substrate;
 - a channel layer ~~formed~~ on the semiconductor substrate;
 - a Schottky layer ~~formed~~ on the channel layer;
 - a first layer having a narrower band gap than the Schottky layer, the first layer ~~inserted in being disposed within~~ the Schottky layer;
 - a second layer having a band discontinuity with the Schottky layer, the second layer ~~inserted in being disposed within~~ the Schottky layer, ~~and the second layer disposed~~ on the first layer;
 - a gate electrode disposed on the Schottky layer;
 - ~~first and second n+ layer formed layers~~ on the Schottky layer on ~~both opposite~~ sides of the gate electrode, ~~the n+ layer having discontinuous parts positioned on the gate electrode;~~
 - a source electrode ~~formed~~ on the first n+ layer; and
 - a drain electrode ~~formed~~ on the second n+ layer.
2. (Currently Amended) ~~A~~ The semiconductor device according to claim 1, wherein the first layer has ~~a lattice defect on boundary face~~ ~~defects at an interface~~ between the first layer and the Schottky layer.
3. (Currently Amended) A semiconductor device comprising:
 - a channel layer ~~formed~~ on a semiconductor substrate;
 - a Schottky layer ~~formed~~ on the channel layer;
 - a p-type-doped layer ~~inserted in disposed within~~ the Schottky layer;
 - an n-type-doped layer ~~inserted in the disposed within~~ the Schottky layer, ~~the n-type doped layer disposed~~ on the p-type-doped layer;
 - a gate electrode disposed on the Schottky layer;
 - ~~first and second n+ layer formed layers~~ on the Schottky layer on ~~both opposite~~ sides of the gate electrode, ~~the n+ layer having discontinuous parts positioned on the gate electrode;~~
 - a source electrode ~~formed~~ on the first n+ layer; and
 - a drain electrode ~~formed~~ on the second n+ layer.

4. (Currently Amended) ~~A~~ The semiconductor device according to claim 1, further comprising a p+ contact layer connecting the source electrode with the Schottky layer, the p+ contact layer being disposed below opposite the source electrode.

5. (Currently Amended) ~~A~~ The semiconductor device according to claim 1, further comprising a via-hole penetrating from the source electrode to the semiconductor substrate.

6. (Currently Amended) A semiconductor device comprising:
a channel layer ~~formed~~ on a semiconductor substrate;
a Schottky layer ~~formed~~ on the channel layer;
a gate electrode disposed on the Schottky layer;
a compound semiconductor layer containing phosphorus (P) and covering the surface of the Schottky layer;
first and second n+ ~~layer formed~~ layers on the compound semiconductor layer containing phosphorus (P), on both opposite sides of the gate electrode, the n+ layer having discontinuous parts positioned on the gate electrode;
a source electrode ~~formed~~ on the first n+ layer; and
a drain electrode ~~formed~~ on the second n+ layer.

7. (Currently Amended) ~~A~~ The semiconductor device according to claim 6, further comprising:
a first pair of first and second compound semiconductor layers containing phosphorus (P) ~~which sandwich~~ sandwiching the first n+ layer; and
a second pair of first and second compound semiconductor layers containing phosphorus (P) ~~which sandwich~~ and sandwiching the second n+ layer.

8. (Currently Amended) ~~A~~ The semiconductor device according to claim 6, further comprising:
a first pair of ~~third first and fourth second~~ compound semiconductor layers containing phosphorus (P) sandwiched between the first n+ layer and the Schottky layer;
a first n- layer sandwiched between the first pair of ~~third first and fourth second~~ compound semiconductor layers containing phosphorus (P).
a second pair of ~~third first and fourth second~~ compound semiconductor layers containing phosphorus (P) sandwiched between the second n+ layer and the Schottky layer;
and

a second n- layer sandwiched between the second pair of ~~third first~~ and ~~fourth second~~ compound semiconductor layers containing phosphorus (P).

9. (Currently Amended) ~~A~~ The semiconductor device according to claim 6, wherein the compound semiconductor layer containing phosphorus (P) is ~~made of~~ InGaP.

10. (Currently Amended) ~~A~~ The semiconductor device according to claim 1, further comprising first and second electron supply layers ~~which sandwich~~ sandwiching the channel layer.